ABSTRACT

A method of forming a one-transistor memory cell includes the steps of: forming a dielectric layer over a substrate having a pass-gate formed thereon; forming an opening in the dielectric layer to expose a portion of the substrate at least adjacent to the pass-gate; forming a capacitor dielectric layer on sidewalls of the opening in the dielectric layer and on the exposed portion of the substrate; and forming an electrode layer over the capacitor dielectric layer. A one-transistor memory cell is also disclosed. The one-transistor memory cell has a substrate having a pass-gate formed thereover. A dielectric layer is formed over the pass-gate and the substrate and has an opening exposing a portion of the substrate adjacent to the pass-gate. A capacitor dielectric layer is formed on sidewalls of the opening and on the exposed portion of the substrate. An electrode layer is formed on the capacitor dielectric layer.